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DISCUSSION OF THE AMENDMENTS

Claims 1, 5, 10 and 13 are currently amended.

Claims 2, 6 and 7 are original.

Claims 3, 4, 8, 9, 11, 12, 14 and 15 were previously presented.

Upon entry of the amendments claims 1-15 will be active.

The amendments to the claims are supported by the claims as previously presented.

The amendments were made to clarify claim language.

No new matter has been added.

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REMARKS

Applicants would like to thank Examiner Puttlitz for the courteous and helpful discussion he had with Applicants' representative on October 3, 2006. At that time, Applicants representative noted that there is no motivation to combine the cited references (Bergman, U.S. 4,241,216 and Isozaki et al., U.S. 5,750,739), and therefore; the claimed process would not have been obvious over the references. The following discussion expands upon that discussion.

The rejection of claims 1-5, 8-10 and 13-15 under 35 U.S.C. §103(a) over Bergman and Isozaki is respectfully traversed.

The present disclosure involves a process for removal of an esterification catalyst from a crude plasticizer ester formed by reaction of a dicarboxylic acid with an alcohol. The process includes treating the crude ester with an aqueous alkali solution to hydrolyze (decompose) the esterification catalyst and separating the aqueous phase containing the hydrolyzed esterification catalyst by gravitational phase separation. The process also involves treating the crude ester with a salt of a divalent metal or a polyvalent metal or mixtures thereof prior to or during the phase separation.

Without the addition of the metal salt, an emulsion layer can form which makes it difficult to completely separate the ester product from the hydrolyzed catalyst. The emulsion is formed, in part, due to the incomplete esterification of all the dicarboxylic acid with the alcohol and by partial hydrolysis of the diester formed in the esterification process by the alkali solution used to decompose the esterification catalyst. (See paragraphs [0004] to [0007] of the published specification). This "half ester" containing one ester group and a carboxylic acid group can stabilized an emulsion owing to a detergent effect of the "half ester" that contains a non-polar group (ester) and a polar group (carboxylate). The treatment of the crude ester with a salt of a divalent metal and/or a polyvalent metal prior to or during phase separation helps to minimize the formation of this emulsion. Minimizing the amount of emulsion formed aids in the separation of the ester product from the hydrolyzed ester catalyst.

Bergman describes a phthalic acid diester preparation process that optionally uses an esterification catalyst. As the Examiner notes on page 4 of the Office Action, Bergman does not teach or suggest treating the ester with a salt of a divalent metal and/or a polyvalent metal prior to or during the phase separation.

Isozaki describes a process for producing glycidyl esters of acrylic acid or methacrylic acid. The process involves forming an ester from epichlorohydrin and a monocarboxylic acid (acrylic acid or methacrylic acid) using a quaternary ammonium salt as a catalyst. Applicants note that this esterification process involves a monocarboxylic acid which can not form a half-ester. Since no half-ester (detergent) is formed, there would be no expectation that an emulsion between an aqueous layer and an organic layer would form. Indeed, Isozaki does not teach or suggest a problem with emulsion formation. Accordingly, there would be no motivation to add a metal salt to Bergman to control emulsion formation based on the teachings of Isozaki.

In addition, Applicants note that the sodium and calcium salts of alkylsulfonic acid, alkylbenzene sulfonic acid, phosphotungstic acid and phosphomolybdic acid (column 6, lines 3-10), noted by the Examiner, are added to deactivate the quaternary ammonium salt catalyst not to control emulsion formation (see also Example 1 in column 7).

In Example 1, the liquid reaction product was mixed with aqueous sodium hydroxide then allowed to stand then separated into an oil layer and an aqueous layer (no emulsion layer is described). The catalyst deactivator is then added to the oil layer which contains the catalyst. The motivation to add the sodium and calcium salts described above are to deactivate the catalyst not to reduce emulsion formation. Accordingly, there would have been no motivation to combine Isozaki with Bergman; and therefore, the claimed process would not have been obvious over these references.

In addition, Applicants note that in Isozaki, the oil layer and aqueous layers appear to be first physically separated before the catalyst deactivator is added. In contrast, the claimed process adds the metal salt prior to or during the phase separation in order to reduce emulsion formation. Accordingly, this process step in Isozaki is different than the claimed process.

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Therefore, even if the references were combined, their combination would fail to meet all the limitations of the claimed method; and accordingly, the claimed process would not have been obvious over the combination of these references.

In light of the Remarks above, Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. §103(a).

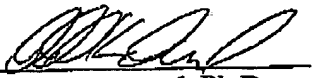
Finally, Applicants note that the claims have been amended such that they are free of the criticisms outlined on page 2 of the Office Action. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection under 35 U.S.C. §112, second paragraph.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 03-2775, under Order No. 12810-00017-US from which the undersigned is authorized to draw.

Dated: October 5, 2006

Respectfully submitted,

By 

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